

Application No.: 10/727,292

Docket No.: JCLA12308-R

**REMARKS****RECEIVED  
CENTRAL FAX CENTER****AUG 07 2006****Present Status of the Application**

The Office Action rejected all pending claims 1, 2, 7, 8 & 11. Specifically, under 35 U.S.C. 103(a), claims 1 & 7 were rejected as being unpatentable over Shen et al. (US 6, 013,771, Shen) in view of Lee (US 6,413,557), claims 1 & 11 rejected over Shen in view of Obata et al. (US 6,444,239, Obata), and claims 1-2, 7-8 and 11 rejected over Mizutani (JP-10298175) in view of Bryan et al. (US 5,994,508, Bryan) and Obata. In response thereto, Applicants have further amended claim 1, canceled claims 7-8 and submitted the following remarks. Reconsideration of claims 1, 2 & 11 is respectfully requested.

**Discussion of Rejections under 35 U.S.C. 103(a)**

&lt;For Claims 1 &amp; 7&gt;

Claims 1 & 7 were rejected as being unpatentable over Shen in view of Lee.

The features of the method of claim 1 include that the insoluble materials formed under a pH of 5.5-7 at 0-17°C are removed from the soybean extract liquid and that the soybean extract liquid is obtained from a soybean material without a physical treatment.

Shen fails to teach or imply the above features of claim 1. As indicated in the claims, for example, Shen collects but not removes the precipitant (insoluble materials), as being contrary to the case of claim 1. Moreover, since Shen teaches that the precipitant is rich in isoflavones, one is not motivated to remove the precipitant as in this invention. In addition, since soybean flakes

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are used in Examples of Shen and soybean flakes must be obtained with a physical treatment, the soybean extract liquid in Shen is obtained from a soybean material with a physical treatment, as being contrary to the case of claim 1.

Lee, which was cited for the feature of canceled claim 7, also fails to teach or imply the above features of claim 1. Accordingly, at least the above features of claim 1 cannot be obtained from the combination of Shen and Lee.

Moreover, the feature that the soybean extract liquid is obtained from a soybean material without a physical treatment is no trivial modification of the prior art. As indicated by [0010] of the specification of this application, when a soybean material that has experienced a physical treatment not destroying soybean cells or even no physical treatment is subjected to water extraction, additional components other than isoflavones contained in the raw material, such as proteins or oils, do not easily exude in large amounts. Therefore, the solubility of the composition containing isoflavones is not lowered, or the recovery ratio of isoflavones is not lowered in the step of removing the insoluble materials.

The features of claim 1 also include that the soybean material comprises soybean hypocotyls. Since Shen's Title indicates that the object of Shen is to produce isoflavone rich protein isolate while *the protein content in the hypocotyl of a soybean is lower than in the other parts of the same*, one of ordinary skill in the art is not motivated to apply soybean hypocotyls as taught by Lee to Shen's method for producing isoflavone rich protein isolate. Hence, it is non-obvious to combine Shen with Lee to obtain the feature that the soybean material comprises soybean hypocotyls.

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<For Claims 1 & 11>

Claims 1 & 11 were rejected as being unpatentable over Shen in view of Obata.

As mentioned above, Shen fails to teach or imply the features of claim 1 including that the soybean extract liquid is obtained from a soybean material without a physical treatment, that the soybean material comprises soybean hypocotyls, and that insoluble materials are removed from the soybean extract liquid.

Obata fails to teach or imply the features that the soybean extract liquid is obtained from a soybean material without a physical treatment and that the soybean material comprises soybean hypocotyls soybean hypocotyls.

As described in Examples 1-3 in columns 4 and 5 of Obata, a soybean material like defatted soybeans is *ground* and extracted to obtain a soybean extract liquid. It is sure that a grinding treatment is a physical treatment. In addition, the feature that the soybean extract liquid is obtained from a soybean material without a physical treatment is no trivial modification of the prior art, as mentioned above.

On the other hand, Obata merely teaches to recover the water soluble components from a soybean extract liquid, but never teaches to use soybean hypocotyls to obtain a soybean extract liquid and recover the water soluble components from *a soybean extract liquid obtained from soybean hypocotyls*.

Hence, for claim 1, at least the features that the soybean extract liquid is obtained from a soybean material without a physical treatment and that the soybean material comprises soybean hypocotyls soybean hypocotyls cannot be obtained by combining Shen with Obata.

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Moreover, since Shen teaches that the precipitant in the soybean extract liquid is rich in isoflavones, as mentioned above, one of ordinary skill in the art is not motivated to change Shen's method of producing isoflavone rich protein isolate and recover the water soluble components instead of the precipitant as taught by Obata. Therefore, it is non-obvious to combine Shen with Obata to obtain the feature that the insoluble materials are removed from the soybean extract liquid.

<For Claims 1-2, 7-8 & 11>

Claims 1-2, 7-8 & 11 were rejected as being unpatentable over Mizutani in view of Bryan and Obata. Please note that claims 7-8 have been canceled.

The features of claim 1 include that the soybean extract liquid is prepared without addition of solubilizing agents and that the soybean extract liquid is obtained from a soybean material without a physical treatment.

For the feature that the soybean extract liquid is prepared without addition of solubilizing agents, Mizutani as the major reference stresses in the Background part many drawbacks of not adding solubilizing agents to the soybean extract liquid, especially the low solubility of isoflavones, hence teaching away to extract isoflavone without addition of solubilizing agents. Though Bryan and Obata extract isoflavone without addition of solubilizing agents, they mention nothing about solubilizing agents. Since Mizutani stresses many drawbacks of not adding solubilizing agents in the soybean extract liquid while Bryan or Obata mentions nothing about solubilizing agents, one of ordinary skill in the art *naturally tends to follow the teaching of Mizutani and use solubilizing agents* when combining Mizutani with Bryan or Obata.

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Therefore, the feature that the soybean extract liquid is prepared without addition of solubilizing agents is non-obvious over the combination of Mizutani, Bryan and Obata.

The above feature that the soybean extract liquid is prepared without addition of solubilizing agents is either no trivial modification of the prior art, because the following drawbacks of adding solubilizing agents are not taught in the prior art. As describe in [0004] of this application, it is necessary to previously refine the isoflavones to certain purity as cyclodextrin as a solubilizing agent is used, so that the operation steps are complicated. Moreover, since cyclodextrin is used when isoflavones are added into drink products, the aroma components like flavors are also included in cyclodextrin molecules, so that the balance of aroma is easily broken down and the commercial product design is difficult accordingly. Furthermore, due to the limitation of the solubility of cyclodextrin, isoflavones cannot be dissolved in water in a high concentration.

For the feature that the soybean extract liquid is obtained from a soybean material without a physical treatment, none of Mizutani, Bryan and Obata discloses it. Mizutani fails to disclose the feature, for his soybean extract liquid is obtained from the soybean material with a pulverization treatment (paragraph [0013]) as a physical treatment. Bryan or Obata also fails to disclose the feature, for Bryan or Obata obtains the soybean extract liquid from the soybean material *with* a physical treatment. As described in col. 4, lines 23-25, Bryan's starting material for the soybean extract liquid is soy flakes, soy meal or soy flour, *which is surely obtained from a soybean material with a physical treatment* like slicing or grinding. As for Obata, as described in Examples 1-3 in columns 4 and 5 thereof, a soybean material (defatted soybeans) is *ground* and

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extracted to obtain a soybean extract liquid. The grinding treatment is surely a physical treatment.

Moreover, the feature that the soybean extract liquid is obtained from a soybean material without a physical treatment is no trivial modification of the prior art, as mentioned in the above arguments for rejections of claims 1 and 7 based on Shen and Lee.

Briefly speaking, this invention discovered that by omitting a physical treatment and solubilizing agents as well as removing the insoluble materials from the soybean extract liquid at specific pH and temperature ranges, a soluble composition having a much higher isoflavone concentration as compared with that obtained from Mizutani's method can be obtained. Such an effect cannot be known by referring to Mizutani that teaches to perform a physical treatment to the soybean hypocotyls and add CD as a solubilizing agent to the soybean extract liquid.

For at least the above reasons, Applicants respectfully submit that independent claim 1 patently defines over the prior art.

For at least the same reasons mentioned above, Applicants respectfully submit that claims 2 and 11 dependent from claim 1 also patently define over the prior art.

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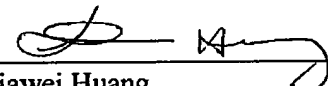
CONCLUSION

For at least the foregoing reasons, it is believed that pending claims 1, 2 and 11 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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